

**Lewis River Hydroelectric Projects Settlement Agreement
Terrestrial Coordination Committee (TCC)
Meeting Agenda**

Date & Time: **Wednesday, December 12, 2012
9:00 a.m. – 11:15 a.m.**

Place: **Conference Call**

Contacts: **Kirk Naylor: (503) 813-6619; cell (503) 866-8750**

Time	Discussion Item
9:00 a.m.	Welcome <ul style="list-style-type: none"> ➤ Review Agenda & 11/14/12 Meeting Notes ➤ Comment & accept Agenda & 11/14/12 Meeting Notes
9:30 a.m.	BPA Transmission Line pre-BPA Discussion
9:45 a.m.	Hamm Meadow <ul style="list-style-type: none"> ➤ Hunting Issues Discussion
10:15 a.m.	➤ Break
10:30 a.m.	RMEF / PAC Grant(s) Discussion
10:45 a.m.	BPA – Holly Harwood
11:00 a.m.	<ul style="list-style-type: none"> ➤ Next Meeting's Agenda ➤ Public Comment Opportunity Note: all meeting notes and the meeting schedule can be located at: http://www.pacificorp.com/es/hydro.html
11:15 a.m.	Adjourn

Join by Phone
 +1 (503) 813-5252 [Portland, Ore.]
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Conference ID: 3015805

FINAL Meeting Notes
Lewis River License Implementation
Terrestrial Coordination Committee (TCC) Meeting
December 12, 2012
Conference Call

TCC Participants Present: (9, 1 guest)

Bill Richardson, RMEF
 Bob Nelson, RMEF
 Peggy Miller, WDFW
 Kirk Naylor, PacifiCorp Energy
 Kimberly McCune, PacifiCorp Energy
 Kendel Emmerson, PacifiCorp Energy
 Nathan Reynolds, Cowlitz Indian Tribe
 Diana Gritten-MacDonald, Cowlitz PUD
 Mitch Wainwright, USDA Forest Service
 Holly Harwood, BPA (guest)

Calendar:

Wednesday - January 9, 2013	TCC Meeting	HCC
Tuesday - February 12, 2013	TCC Meeting	HCC

Assignments from December 12, 2012	Status
Peggy Miller/Eric Holman: Research WDFW process for changing hunting regulations (Hamm Meadow Issues). Discuss at the January 2013 TCC meeting.	In Progress as of 1/9/13
Naylor: Provide copy of landowner (Hamm Meadow) petition to WDFW.	Complete - 1/9/13
Naylor/Emmerson: Prepare a generic BPA comment letter to review and discuss at the January 2013 TCC meeting.	Complete - 1/9/13
McCune: Email original RMEF/PAC Grant Proposal to Peggy Miller and Eric Holman (WDFW).	Complete - 12/12/12
Miller/Holman: Provide letter of support specific to the RMEF/PAC Grant Proposal PacifiCorp submitted on November 19, 2012.	Complete - 12/17/12

Assignments from June 13, 2012	Status
Naylor: Review the SA/WHMP budget(s) as well as determine status and opportunity for coordination with John Cook (NCASI) and Lisa Shipley (Washington State University) doing the blacktail study and report back to the TCC.	In Progress

Parking lot items from April 13, 2011 Meeting	Status
Naylor: Provide TCC with Riparian Management Plan for review.	Pending

Parking lot items from December 12, 2012 Meeting	Status
PacifiCorp: Work with TCC to proceed with second RMEF/PAC Project Proposal.	Pending

Review of Agenda and Finalize Meeting Notes

Kirk Naylor (PacifiCorp Energy) called the meeting to order at 9:00 a.m. Naylor reviewed the agenda and asked the TCC if there were any changes/additions. No additions or changes were requested.

Naylor reviewed the November 14, 2012 meeting notes. No changes/edits were requested. The meeting notes were approved at 9:05 a.m.

Bonneville Power Administration (BPA) Transmission Line pre-BPA Discussion

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Hamm Meadow – Hunting Issues Discussion

Naylor informed the TCC that PacifiCorp is experiencing numerous incidents of illegal hunting and safety issues regarding shooting on the 57 acres (Jackman property) it acquired in 2009 called Hamm Meadow. There have been poaching, rifle and muzzle-loader shots, and neighbors in surrounding homes have expressed concern. Naylor pointed out a specific incident of a hunter who saw a 4 point bull in the meadow; the hunter didn’t know what unit he was in and started shooting at the elk; no less than 4 shots; at least one apparently striking an adjacent building. Officer Brandon Chamberlain (WDFW) took the hunters rifle and there is an on-going investigation. The neighbors have secured a petition (8-10 signatures) requesting that PacifiCorp close its property to hunting.

Naylor also communicated that hunters are using the private drive (Aultman Road; east side of property) and residents say that the hunters drive through private property to hunt the Hamm Meadow. Incidents include a lot of uneducated hunters of what is open and where the unit boundaries are. Last year a rifle bullet apparently went through a home. Upon hearing of this incident Naylor told the home owner that he would discuss the issue with law enforcement and the TCC. A police officer met with a resident and took a statement from her to facilitate his interactions.

Naylor reviewed the regulations and could not find a reference indicating a required shooting distance from a house, barn, etc. However “reckless endangerment” would be applicable to shooting towards a structure. The regulations indicated that one cannot shoot from or across a public road. Given that this property is surrounded by roads on three sides and homes virtually all the way around, it is a legitimate safety issue in the discharge of firearms. This piece of property is part of the Yale hunting unit and issues 50 permits for primitive weapon hunting for elk. When the TCC initially purchased this property Naylor expressed concern about hunting since it is surrounded by homes.

The petition Naylor received included the following statement made by Jackman in a “When the property was sold to PacifiCorp, the seller, still residing next to this field, was under the impression that with the partnership PacifiCorp has established with the Rocky Mountain Elk Foundation, the property would be used as a sanctuary and improved habitat area for the elk”. Bill

Richardson (RMEF) expressed that we would not typically enter into a transaction that was closed to access to hunting.

Naylor said that all incidents appear to have been caused by uninformed people engaging in poaching and illegal activity, not responsible hunters, or hunters with legitimate permits for hunting the area.

Naylor informed the TCC that PacifiCorp is concerned about all matters of safety and its PacifiCorp prerogative to protect the public and its employees. However, PacifiCorp does not want to be misled by only illegal activity. PacifiCorp recommends that the Petition be sent to WDFW. Naylor has spoken to RMEF and Eric Holman (WDFW) and PacifiCorp legal about the following options. Per Naylor's discussion with Holman, WDFW has the authority to send letters to all 50 permit hunters advising them of the regulations and safety concerns. WDFW has authority for regulation changes but the process could take over a year. Options Naylor is considering include:

- 1) Eliminate muzzle loaders and make archery only.
- 2) Close entire 57 acres, however, there is concern about increased elk numbers and potential disease transmission, impact on adjacent properties; additionally, large concentrations of elk in a closed area may become an attractive nuisance leading to additional poaching.
- 3) Close to hunting but work simultaneously with WDFW to allow management of herds using master hunting program.
- 4) Private owners can do a better job at posting their private roads and closing access to their properties.

Reynolds asked what the signage is like at Aultman Road now. Naylor responded that there is a small sign there now.

Richardson said if closed the same issue will exist with unethical law breaking hunters, so these changes will likely not stop the poachers.

Reynolds said that the following opportunities exist:

- 1) Opportunity to increase the quality of signage.
- 2) A big herd of elk could be an attractive nuisance for unethical hunting.
- 3) Opportunity to add more planting to increase visibility screen.

Emmerson and Naylor both expressed that PacifiCorp planted vegetative screens along the highway and along property lines in 2010 but time is needed for existing vegetation to grow. Perhaps we can add ocean spray, which is fast growing. It could take a decade to get a well-developed vegetative screen.

Wainwright said that continuing to allow hunting is a huge safety issue to many houses close by.

Richardson said that if we have to close due to safety he understands. Archery restriction is a good first step. We may not be able to control a blanket "no hunting", policy without unintended consequences.

Naylor said that the property was not open to public hunting before PacifiCorp ownership.

Diane Gritten-MacDonald (Cowlitz PUD) said we could respond by a temporary closure while working with the WDFW Commission and allowing vegetation to mature.

Bob Nelson (RMEF) said that signing and planting would be good ideas until we can get a regulation change to archery only.

The TCC agreed that unless a regulation change can be implemented for 2013 to archery only, then the area (Hamm Meadow) would be posted by PacifiCorp as closed to hunting in 2013 (with Master Hunting available if necessary). During the interim, add additional screening vegetation where feasible and necessary; posting signs and ask residents to cooperate with our efforts and increasing the number and size of their own signs for private roads.

Naylor communicated that this closure needs support from Peggy Miller (WDFW) to establish the process. PacifiCorp is committed to its habitat management obligations but the WDFW needs to take the lead in regulation changes. PacifiCorp/TCC will likely need to attend Commission meetings, inform property owners, etc. Miller said that she will talk to Holman to see what to do next.

Richardson asked if PacifiCorp can grant hunting by permission only. Naylor doesn't want PacifiCorp in a permitting capacity because of administrative process.

Reynolds wanted to know what is required to regulate archery hunting only. Naylor responded that PacifiCorp is already paying for law enforcement to regulate hunting on PacifiCorp lands and that should suffice.

Naylor indicated that PacifiCorp will be accessing its risk and liability with its legal counsel and he will be speaking with a representative of the residents.

<Break 10:15am>

<Reconvene 10:25am>

RMEF/PAC Grant(s) Discussion

Naylor informed the TCC attendees that the RMEF/PAC Grant Proposal was submitted to RMEF on November 19, 2012.

Naylor also communicated that he spent 3-4 hours on the proposal recommended by Eric Holman (WDFW) specific to implementing habitat enhancement on the Fruit Growers Supply (FGS) Swift lands but he was unable to address specific needs and didn't think it was timely to send in the proposal. A recommendation was made to move this second RMEF grant proposal to the parking lot items for consideration in 2013.

McCune will email a copy of the original proposal to Miller and Holman as RMEF requested a letter of support from WDFW. Miller and Holman will provide to PacifiCorp and RMEF on or before December 21, 2012.

BPA – Holly Harwood

A representative from BPA, Holly Harwood introduced herself, communicated that she has extensive knowledge of the Lewis River Settlement Agreement (SA) as a former employee of PacifiCorp and chief negotiator for the SA. She has been with BPA for five years (usually works with fish operations) but has been asked by BPA to work on the *BPA I5 Corridor Reinforcement Project* because of her background and knowledge of the Lewis River project.

Harwood communicated that she put her heart and soul into the SA and doesn't want to do anything to upset it. Her intent is to figure out the mitigation needs for the *BPA I5 Corridor Reinforcement Project* so we can move forward with the preferred alternative. She further stated that BPA would host the January 2013 meeting to discuss the proposed route(s), review maps, talk about necessary mitigation and what we can do first for realignment of particularly sensitive areas.

Naylor responded that the January 2013 TCC meeting is full but we appreciate BPA providing additional information of any alignment changes. The TCC schedule does not allow discussing specific mitigation changes until after March 1, 2013, the deadline for responses on the BPA Draft Environmental Impact Statement (EIS).

Harwood encouraged the TCC to review alignment sooner than later.

Emmerson asked about the process to get to the final EIS. Harwood indicated the process is as follows:

- EIS ends on 3/1/13 for comments
- BPA will review comments; consider modifications
- Possible that BPA could consider an alternate route based on comments received
- All comments will be considered equally
- Final EIS is expected to come out in 2014

The only time to comment on the EIS is now until March 1, 2013 but considerable more time will be given to mitigation discussion, negotiations and easements.

Miller said she is not ready for discussion around specific mitigation but is willing to reviewing maps. She suggested considering the February 2013 meeting.

Harwood asked what the biggest mitigation concerns are. She realizes that the TCC said they may not have time prior to March 1, 2013 to provide these concerns.

Naylor encouraged BPA to review the TCC letter dated June 13, 2011 (*BPA I5 Corridor Reinforcement Project, Impacts and Preliminary Assessment for PacifiCorp Project Lands Attachment A*) sent by the TCC as a good starting place regarding mitigation needs. Harwood said it would be helpful to have a conversation about the degree of mitigation concerns and review maps.

The TCC agree to add BPA to the February 12, 2013 meeting agenda to review maps.

Other Items

The TCC agreed to continue its meetings monthly, on the second Wednesday of every month. In addition, the TCC agreed to modify the February 2013 meeting to Tuesday, February 12, 2013.

Public Comment Opportunity

No public comment was provided.

<11:15 a.m. meeting adjourned>

Agenda items for January 9, 2013

- Review December 12, 2012 Meeting Notes
- Review BPA draft letter
- Review old growth memorandum
- Year end fund reporting
- Discussion of process relating to Game Commission and changing regulations

Next Scheduled Meetings

January 9, 2013 - (Wednesday)	February 12, 2013 - (Tuesday)
TCC Meeting	TCC Meeting
Merwin Hydro Control Center	Merwin Hydro Control Center
Ariel, WA	Ariel, WA
9:00am – 3:00pm	9:00am – 3:00pm

Attachments:

- December 12, 2012 Meeting Agenda
- November 14, 2012 Meeting Notes
- **Attachment A** – BPA I5 Corridor Reinforcement Project, Impacts and Preliminary Assessment for PacifiCorp Project Lands, dated June 13, 2011

June 13, 2011

Mark Korsness
I-5 Corridor Reinforcement Project
PO Box 9250
Portland, OR 97207

Subject: Bonneville Power Administration (BPA) I-5 Corridor Reinforcement Project Impacts and Preliminary Assessment for PacifiCorp Project Lands

Dear Mr. Korsness,

The Lewis River Settlement Agreement of November 30, 2004 governs the environmental provisions of the Lewis River Hydroelectric Projects operated by PacifiCorp and Public Utility District No. 1 of Cowlitz County (Cowlitz PUD). Section 14.1 of the Settlement Agreement (Coordination and Decision Making) established the Terrestrial Coordination Committee (TCC), which is tasked with coordination and monitoring implementation of terrestrial protection, mitigation and enhancement measures specified in the Settlement Agreement and within the Wildlife Habitat Management Plans (WHMP) of each utility. In addition to PacifiCorp and Cowlitz PUD, the TCC is represented by individuals from the following agencies, tribes and conservation organizations, which have contributed to the review of the BPA proposed project:

- United States Fish and Wildlife Service (USFWS)
- USDA Forest service (USDA-FS)
- Washington Department of Fish and Wildlife (WDFW)
- Cowlitz Indian Tribe
- Rocky Mountain Elk Foundation (RMEF)

In 2010, PacifiCorp and the TCC were notified by the Bonneville Power Administration (BPA) of the proposed I-5 Corridor Reinforcement Project. In order to understand how BPA's proposed corridor routing may impact PacifiCorp's Wildlife Habitat Management Plan (WHMP) lands and required ongoing mitigation actions, PacifiCorp and the TCC identified the need to acquire specific habitat information and evaluate an established bald eagle winter roost site. The TCC's assessment of the proposed BPA project impacts to WHMP lands is fully addressed in Attachment A to this letter.

The TCC's review comments were shared with the Lewis River Aquatics Coordination Committee (ACC) on May 12, 2011 to ensure that aquatics resource issues were addressed. The ACC stakeholders commented that woody debris components contributed from tributaries to the North Fork Lewis River are significant to the recovery of the lower river basin fisheries. Any loss of this resource from adjacent riparian habitats and tributaries would require mitigation. The TCC comments (see Attachment A) include the recognition of riparian habitat effects on the ecological function of aquatic habitats.

Within the Settlement Agreement and FERC licenses, there is only limited opportunity for actions unrelated to wildlife management to occur on WHMP lands. Section 10.8.5.5, Mitigation for Impacts on Wildlife Habitat states:

If PacifiCorp proposes to take actions on its Interests in Lands managed under its WHMP, other than those actions specifically prescribed in the settlement agreement or its WHMPs and that action makes those lands no longer available for wildlife habitat, PacifiCorp shall consult with the Terrestrial Coordination Committee (TCC) to determine if any mitigation is necessary.

There is no existing authority within the FERC licenses and the supporting governing documents – including the Biological Opinion, the Settlement Agreement and the Wildlife Habitat Management Plan – for any external agency or organization to “take actions... [that] makes those lands no longer available for wildlife habitat.” Therefore, the TCC strongly recommends BPA select a corridor for the I-5 Corridor Reinforcement Project that entirely avoids PacifiCorp’s WHMP lands within the Lewis River watershed.

The TCC has reviewed the BPA transmission line corridor proposals with respect to the goals and objectives of the WHMP in the attachment to this letter. It is the opinion of the TCC that any proposed alignment of the BPA I-5 Corridor Reinforcement project that crosses WHMP lands will have significant adverse negative impacts on the habitats, species and ecosystem function of these mitigation lands. This would be in direct conflict with numerous goals and objectives of the WHMP, FERC licenses and supporting documents. In addition, the BPA proposed action would affect listed species and critical habitat in ways not authorized under the existing BiOp. Any new effects to listed species or critical habitats on WHMP lands from the BPA project will require re-initiation of formal consultation with the USFWS to determine the affects to northern spotted owls (*Strix occidentalis caurina*), and would necessitate the modification or amendment of PacifiCorp’s and Cowlitz PUD’s Biological Opinion.

The standard Use and Occupancy articles of the Merwin and Yale FERC licenses (Articles 413 and 414 respectively) identify the licensee’s authority to grant permission for certain types of use and occupancy of project lands. The pertinent portion of the article reads as follows:

The licensee may exercise the authority only if the proposed use and occupancy is consistent with the purposes of protecting and enhancing the scenic, recreational, and other environmental values of the project.

Constructing a transmission line through existing mitigation lands that are managed for wildlife habitat purposes is not consistent with protecting or enhancing the scenic, recreational, and other environmental values of the project. Hence, the TCC believes that PacifiCorp’s authorization of the BPA transmission line on WHMP lands within the FERC project boundary would be inconsistent with Articles 413 and 414.

The TCC also believes BPA does not have the authority to take actions on PacifiCorp’s WHMP lands without TCC concurrence. Although the proposed transmission line corridor-siting action is proposed by BPA and not PacifiCorp, the TCC shall retain consulting authority per Section 10.8.5.5. of the Settlement Agreement to “determine if any mitigation is necessary.” The

Mark Korsness
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decision ultimately rests with the Federal Energy Regulatory Commission (FERC) to obtain their approval for easements or rights-of-way across projects lands and they will likely consider the opinion and recommendations from the TCC.

A FERC license amendment proceeding could take several months to complete even if the proposal has support of all regulatory agencies and stakeholders. It could take substantially longer if the license amendment was opposed.

Based on this potential action, and consistent with Section 10.8.5.5. of the Settlement Agreement, the TCC believes that if a BPA transmission corridor is ultimately sited on PacifiCorp WHMP lands, mitigation will be required. The TCC therefore agrees to consult cooperatively with BPA to further characterize and quantify the significant adverse impacts resulting from routing the I-5 Corridor Reinforcement Project on, over or across PacifiCorp's WHMP lands. The TCC will also cooperatively develop mitigation strategies and alternatives that will, as effectively as possible, offset decreased ecosystem function and loss of ecological integrity on PacifiCorp's Wildlife Habitat Management Plan lands resulting from BPA's transmission corridor.

Regards,



Kirk S. Naylor, on behalf of the Lewis River Terrestrial Coordination Committee
PacifiCorp Co-Chair for TCC
825 NE Multnomah, Suite 1500
Portland, Oregon 97232

Encl:	Cover Letter – Public
	Attachment A – Final TCC Response for BPA T-line Project Impacts
	Attachment B – Buffers by Corridor
	Attachment C – Vegetation by Corridor

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SUBJECT: Assessment of Bonneville Power Administration Proposed 500-Kilovolt Line on Lewis River Wildlife Habitat Management Lands**ISSUE:**

The Bonneville Power Administration (BPA) has proposed routes for a new 500-kilovolt transmission line in southwest Washington that cross Lewis River Wildlife Habitat Management Plan (WHMP) lands and the Federal Energy Regulatory Commission (FERC) Project Boundaries for PacifiCorp's Lewis River Hydroelectric Projects (Merwin and Yale). PacifiCorp lands are managed according to their respective FERC license requirements as mitigation for ongoing hydroelectric project effects and are overseen by the Terrestrial Coordination Committee (TCC).

This document is a summary of PacifiCorp's and Cowlitz PUD's (the Utilities) obligations and the potential BPA project effects relating to the utilities commitments under its licenses, United States Fish and Wildlife Service (USFWS) Biological Opinion and Settlement Agreement.

This document summarizes impacts to WHMP lands that may result from BPA's proposed transmission line routes. Information used in this analysis has been provided by BPA and its contractors, as well as by PacifiCorp's internal GIS datasets and analyses of stream buffers, wetlands and shorelines. Additionally, PacifiCorp and TCC biologists used existing knowledge and information on habitat impacts, species impacts, impacts to riparian, wetland, and shoreline buffers, and impacts to Northern spotted owl (*Strix occidentalis caurina*) habitat, as described in the WHMP.

BACKGROUND:

In February 2010, BPA met with the TCC and identified several proposed transmission line corridors that would cross WHMP lands. The TCC expressed several concerns regarding corridors identified through recreation management areas, bald eagle (*Haliaeetus leucocephalus*) nest areas and old-growth habitat. Several corridors were later removed from further consideration by BPA, but some remaining routes still impacted WHMP lands and protected habitat.

PacifiCorp requested BPA hire consultants to conduct vegetation cover type mapping, as well as winter roost eagle surveys, along remaining routes proposed on WHMP lands. On May 11, 2011, BPA and Mason, Bruce & Girard (MB&G, consultants to BPA) presented results of these studies to the TCC. During discussion, the TCC was informed that the BPA-proposed study area boundary on PacifiCorp property was based on a 150-foot transmission right-of-way (ROW) plus up to 200 feet of potential additional clearing to a "backline" on each side of the ROW. This clearing-to-backline was represented to the TCC as BPA's standard practice to ensure all

potential hazard trees within reach of the line would be removed. Vegetation would be allowed to re-grow in the 200-foot zone beyond either side of the ROW, as long as trees did not reach a height that would threaten the transmission line. This initially could result in a 550-foot wide clearing along the entire length of the selected transmission line route (not necessarily all on PacifiCorp WHMP lands).

The Vegetation Cover Type Mapping Survey Report (MB&G 2011) indentified the total area of WHMP lands under consideration for BPA proposed routes encompassed 243 acres. The MB&G survey did not include the area (ROW and backline) in T6N R4E Sec 30 and T6N R4E Sec 19 located north of the MB&G survey area. This property was purchased by PacifiCorp in December 2011 as part of PacifiCorp's license implementation requirements. The area of WHMP lands in this recent acquisition potentially affected by Corridor Segment K was added to this assessment document by PacifiCorp, following the same study (backline) width assessed by MB&G immediately south along the same corridor (Appendix A and B).

The TCC believes that the edge effect of these transmission line clearings will result in significant secondary effects on the adjacent WHMP lands, such as increased potential for wind damage (blown-down trees). The strength of secondary effects will depend on many variables, such as age of the surrounding timber, aspect, slope and soil types. These additional impacts to the goals and objectives of the WHMP are not yet fully assessed, but at a minimum are expected to extend into the stand a distance equal to the height of one to two site-potential trees (site potential varies on tree species and site class).

The TCC concludes that a complete assessment of BPA's proposed transmission line across WHMP lands cannot be fully evaluated until a final corridor is selected and additional evaluations are made. The Utilities do not have sufficient time and resources to conduct further necessary evaluations for all corridor options.

Wildlife Habitat Management Plan

The requirement for protection of PacifiCorp-owned Lewis River lands for wildlife habitat originated in the November 30, 2004, Lewis River Settlement Agreement reached with 26 parties including state, federal, tribal and local governments concerning the relicensing of the Lewis River Hydroelectric Projects (Merwin, Yale, Swift No. 1 and Swift No. 2). The agreement required PacifiCorp, for its appropriate land ownership, develop a WHMP in consultation with parties to the agreement. The ongoing purpose of the WHMP is to offset habitat impacts and associated wildlife losses resulting from continued operation of the Lewis River Projects by protecting, mitigating and enhancing existing wildlife habitat on the Licensees' owned and/or controlled lands that are associated with the Projects. In developing the WHMP, parties identified specific standards and guidelines based upon overall management objectives. Goals and objectives applicable to this assessment include:

- Old-growth Habitat Management,
- Wetland Habitat Management,
- Raptor Site Management,
- Forestland Habitat Management,
- Invasive Plant, Species Management,
- Riparian Habitat Management,
- Public Access Management, and
- Transmission Line Rights-of-Way (ROW) Habitat Management.

Over a two-year period between 2006 and 2008, PacifiCorp worked with stakeholders to develop the Wildlife Habitat Management Plan. On May 29, 2009, it was approved by the FERC. The Plan includes specific habitat and species management goals and objectives as well as plan-wide goals and objectives for invasive plant management, raptor management, public access management and monitoring. As new land is purchased, it is to be managed per WHMP objectives.

The following sections clarify each of the habitats, goals and objectives identified within the WHMP lands potentially affected by BPA's proposed transmission corridors.

1. Old-growth Habitat and Species

The WHMP goal is to ***Protect and maintain existing old-growth conifer stands and identify mature conifer stands to develop into old-growth habitat.*** The specific objectives pertinent to the proposed BPA action are further identified as:

- Objective b: Protect and maintain existing old-growth conifer stands to provide high quality habitat for pileated woodpeckers (*Dryocopus pileatus*), other cavity nesters, and other species over the life of the licenses.
- Objective c: Protect and manage forested buffers adjacent to streams, wetlands, and reservoir shorelines to promote the development of large trees where appropriate, and to provide connectivity between existing old-growth conifer stands over the life of the licenses.
- Objective d: Within 5 years of the Lewis River WHMP implementation, identify and evaluate specific mature conifer stands or other areas that could improve habitat connectivity between old-growth stands or increase number or size of old-growth patches, and develop a schedule to manage/protect these areas as appropriate.

Based on the BPA Vegetation Cover Type Mapping Survey Report prepared by Mason, Bruce & Girard (MB&G, 2011), habitat type acreages were summarized (Table 1) to show the impacts to old-growth habitat, mature conifer and riparian vegetation. These acreages are the areas of potential effect where proposed transmission line corridors and associated access roads impact habitat. These acreages would otherwise (per the WHMP objectives above) be managed to promote the development of large trees and provide connectivity between existing old-growth conifer stands.

Table 1. Summary of WHMP Vegetation Cover Types within the Project Survey Boundary Associated with WHMP Old-growth Objectives.

Cover Type	Acreage Potentially Affected by Proposed Corridors			
	L Corridor	M Corridor	K-W Corridor	L-N-W Corridor
Mature Conifer	1.60	0.0	0.56	2.13
Old Growth	4.98	10.45	22.24	25.24
Riparian Deciduous	0.05	3.19	0.0	0.07
Riparian Mixed	2.09	0.0	0.0	2.09
Total	8.71	13.36	22.80	29.53

The loss of old-growth habitat and structure is a part of each transmission alternative and violates not only the BiOp (see Raptor Site Management) but the very intent to manage for and benefit a broad range of wildlife, fish and native plant species. Depending on the corridor, the loss of old-growth habitat represents from 7 – 35% of all the old-growth currently mapped on WHMP lands (Corridor L = 7%; Corridor M = 14%; Corridor K-W = 31%; and Corridor L-N-W = 35%). The influence of clearing adjacent to old-growth timber stands (edge effect) could cause additional wind-throw and other mortality effects ranging from 16 to 137 m into the interior of the adjacent stands (Chen et al. 1992). In old-growth conifer stands the edge effect will increase desiccation and drying effects and increased influence of light, which may affect species growth and community composition. Areas impacted by these secondary effects are not included in this table. Other influences of edge are determined by the patch size of the adjacent stand, but significantly-decreased ecological function in the relatively small existing old-growth stands on PacifiCorp lands is anticipated.

The WHMP also has a goal and an objective identified for raptors (See #4) that includes the Northern spotted owl which is related to old-growth habitat. The WHMP Raptor Site management goal is to: ***Provide and protect habitat for, and minimize or avoid disturbance to, raptors, including bald eagles (*Haliaeetus leucocephalus*)*** ***buteos, ospreys (*Pandion haliaetus*), accipiters, and owls.*** The specific objective pertinent to the proposed BPA action and old-growth habitat is identified as:

- Objective i: Unless separated by a reservoir from the Siouxeon Spotted Owl Special Emphasis Area, over the life of the licenses, manage at least 50 percent of the WHMP lands within a 2-mile buffer outside of the Siouxeon Spotted Owl Special Emphasis Area to provide/develop high-quality nesting spotted owl habitat, as defined by Washington Administrative Code 222-16-085 (1) (a).

Objective i of the WHMP includes those lands within corridor K-W (Appendix A) lying on both sides of Canyon Creek. High quality nesting habitat is identified as old-growth and mature conifer stands. Those lands along Canyon Creek identified as old growth and mature forest are critical to PacifiCorp meeting this objective. The loss of this habitat is not replaceable in terms of meeting this objective. Managing other vegetation or habitat types to become old-growth or mature habitat to replace what was lost in the same area may require as much as 100 years to obtain at minimum mature conifer forest structure (average stand diameters of 21 inches to 26 inches diameter at breast height). Setting aside additional land within PacifiCorp's ownership east of Canyon Creek (assuming loss of old growth and mature habitat based on the transmission corridor) would then limit available habitat in this area to meet other objectives for species (specifically elk) that require early seral forest habitat.

The BPA proposals will also impact PacifiCorp's ability to meet terms and condition of the US Fish and Wildlife Service (USFWS) Biological Opinion (BiOp). The BiOp states: ***For those lands managed under the WHMPs, no suitable spotted owl nesting habitat (Old-growth and mature stands) would be removed.*** The BiOp is based on the settlement agreement conditions which directed the WHMP measures, and it concluded that PacifiCorp's management is not likely to jeopardize the continued existence of the spotted owl. They also concluded that the WHMP implementation would not likely jeopardize the continued existence of the bald eagle. The BiOp was written to cover both PacifiCorp and the Public Utility District No. 1 of Cowlitz County [Cowlitz PUD].

2. Riparian and Wetland Habitat Management

The WHMP goal is to ***Protect, maintain, and/or enhance riparian and wetland areas by establishing buffers up to 300 feet*** (depends on stream/wetland size and fish presence/absence).

Riparian habitat and the respective buffers probably provide some of the most diverse, dynamic and complex terrestrial habitats in the Pacific Northwest. Additionally, reservoir shorelines (200 foot buffers per WHMP), while not considered riparian habitats, offer the best perching and nesting habitat for osprey and bald eagles. Riparian and wetland habitat buffers provide a number of important ecosystem functions, including stream-bank stabilization, stream temperature control, flood control, and wildlife habitat. These habitats also contribute to the aquatic food web and provide structural diversity by contributing large woody debris to stream or wetland systems. Riparian habitats are designated by the Washington Department of Fish and Wildlife as a Priority Habitat in Washington and the large buffers identified on WHMP lands reflect this priority. The proposed transmission routes would remove from 11.0 to 53.4 acres of buffer habitat (including lands already identified as old-growth) based on clearing-to-backline in ROW corridors. Stream and wetland buffers are identified in Table 2 for each potential corridor option and maps are located in Appendix B.

Table 2. Summary of Aquatic Buffer Acreage Potentially Affected by Transmission Corridors.

Water/Stream Type ¹	Acreage Potentially Affected by Proposed Corridor			
	L Corridor	M Corridor	K-W Corridor	L-N-W Corridor
Seasonal, Non-fish Stream (Ns)	2.8	2.1	4.9	5.2
Perennial, Non-fish Stream (Np)	17.7	0.0	4.4	22.8
Wetland	0.0	0.0	2.1	0.4
Lake Shoreline	0.0	0.0	21.3	14.4
Lewis R. Shoreline	7.2	9.0	3.5	10.7
TOTAL	27.8	11.0	36.1	53.4

¹Ns = 100 feet buffer either side; Np = 150 feet either side of stream; wetland = 150 feet for wetlands greater than 1-acre; lake Shoreline = 200 feet; LR Shoreline = 300 feet.

Transmission line corridors K-W and L-N-W affect wetland habitat by clearing a portion of designated wetland buffers. The most significant of these is the 2.1 acres of wetland buffer associated with the K-W corridor. This wetland and the surrounding property were purchased in 2010 to provide additional mitigation habitat for wildlife. Even though transmission lines can often span portions of a riparian area or stream without all vegetation being removed it is unknown at this time to what extent this will be possible. PacifiCorp has extensive experience in managing riparian and wetland habitats within transmission ROW's and understands the limitations to vegetation height, potential conflicts with transmission line clearances and unintended introduction of invasive plants in these habitats.

3. Raptor Site Management

The WHMP goal is to: *Provide and protect habitat for, and minimize or avoid disturbance to, raptors, including bald eagles (Haliaeetus leucocephalus), buteos, ospreys (Pandion haliaetus), accipiters, and owls.* The bald eagle is a Washington State sensitive species and receives federal protections under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. PacifiCorp has developed a Bald Eagle Management Plan (BEMP) as part of the Lewis River Wildlife Habitat Management Plan (WHMP) to satisfy the Washington State Bald Eagle Protection Rule (Washington Administrative Code [WAC] 232-12-292). According to guidance outlined in PacifiCorp's BEMP, bald eagle roost monitoring will be conducted when activities with the potential to disturb roosting eagles (e.g., timber harvest operations,

construction) occur within 0.25 mile of known communal roosts during the key wintering period of November 15 – March 31 (PacifiCorp 2008). At the request of PacifiCorp, BPA hired Mason, Bruce & Girard (MB&G) environmental consultants to survey a known bald eagle communal roost near the K and W Corridors (Yale Site) as a preliminary action for assessing these corridors.

In the 1980s, a bald eagle communal roost site was identified along the Lewis River below the Yale Dam and near Canyon Creek. Although only low concentrations of bald eagles were observed at this site (fewer than six eagles roosting at one time), bald eagle activity was observed over the course of several years (Anderson et al. 1985, Anderson and Ichisaka 1986). MB&G biologists concluded that the Yale Site continues to be utilized by bald eagles as a communal winter roost, based upon Phase I surveys (2010/2011). MB&G concluded that given the bald eagle activity observed, particularly at the Yale Site, avoidance of the sites and selection of other transmission line routes would be the best way to avoid or reduce impacts to wintering bald eagles (MB&G 2011).

The Merwin Site (not currently identified as a bald eagle roost) consists of 57.8 acres of primarily old-growth Douglas-fir and western red cedar dominated forest located on the southern shore of the Lewis River (MB&G 2011). This site provides access to suitable foraging habitat (e.g., stunned/dead fish moving through the dam; waterfowl), multiple suitable perch and roosting locations, and protection from inclement weather, which is provided by the steep slope and dense timber. At the completion of both surveys, it was concluded that bald eagles were utilizing the area and could potentially use the site for night roosts although a communal roost was not confirmed (MB&G 2011). Proposed BPA corridor M would directly remove this suitable habitat for all species of raptors but specifically affect (disturb) important flight paths along the Lewis River corridor that bald eagles use to access foraging areas and roost sites.

MB&G (2011) also identified that the Segment-W transmission corridor passes directly through habitat where eagles were observed perched or roosting on the east side of Canyon Creek. While bald eagles are certainly of significant and unique importance, the transmission line corridors also remove habitat where other forest raptors and owls have their own unique habitat requirements. Many use large trees and snags for roosting, perching, foraging and nesting.

4. Forestland Habitat Management

The WHMP goal is to: ***Promote forestland species composition and structures that benefit wildlife and provide an appropriate mosaic of big game hiding cover and forage.*** The specific objectives pertinent to the proposed BPA action are further identified as:

- Objective a: Provide a range of alternatives for developing and maintaining a mix of forage and cover for elk.
- Objective b. Over the life of the licenses, maintain or create at least eight snags (\geq 20 inches dbh), green retention trees (\geq 15 inches dbh), or wildlife reserve trees per acre if available within each harvest area.

- Objective c: At the Management Unit level, promote forest habitat diversity for wildlife by increasing or maintaining minor native tree species (e.g., cottonwood [*Populus* sp.], big-leaf maple [*Acer macrophyllum*], western red-cedar [*Thuja plicata*]) composition where appropriate site conditions exist over the life of the licenses.

Forestland is a general term for upland areas dominated by trees; it encompasses all forest types, structures, and age classes. The composition, structure, and habitat quality of forestlands for wildlife vary greatly. As identified in the objectives, snags are a significant habitat component that will be negatively affected by the presence of a transmission ROW and additional access roads.

Existing strategic management for the WHMP would be greatly affected by the transmission ROW through forest lands. PacifiCorp purchased 479 acres of land northwest of Yale Dam in 2010 as part of the settlement agreement to protect additional wildlife habitat in the vicinity of the Yale Hydroelectric Project. The BPA proposed K-corridor would bisect this property and negatively affect the ability to manage significant areas of forestland habitat due to the position of the ROW along the primary ridges on the parcel. This placement will preclude techniques of forest management and selective harvest because of the location of the transmission line. Because this property was purchased specifically to protect additional wildlife habitat, the proposed ROW compromises the intent for purchasing the property. Although transmission ROW's can be managed to provide good elk forage habitat when managed correctly, the corridors can also contribute to elk vulnerability due to long site distances along the corridors especially where they cross public roadways. The age and forest stand structure of the recently purchased property was developed from densely planted seedlings and managed for long-term fiber production. This has resulted in trees with insufficient crowns that will be highly vulnerable to wind-throw when a long linear transmission corridor (including backline) is created. This could pose significant threats to effective management and development of small interspersed forage and cover habitat components for big game species as intended for this particular area.

Western redcedar is a dominant, co-dominant or sub-dominant species in many of the Upland Mixed (forest stands characterized by > 30% and < 70% conifer or deciduous trees) and Mature Conifer (forest stands characterized by average stand diameters 21 inches to 26 inches dbh with uniform vertical and horizontal structure) forest stands, as identified in the MB&G surveys. The MB&G surveyors recorded a total of 1,871 western redcedar trees within the survey area and created nine polygons representing particularly high concentrations of western redcedar. Black cottonwood trees are scattered throughout the survey area and were particularly concentrated on the L-corridor. Both of these tree species are identified in the WHMP as species that promote forest habitat diversity and are retained as a Best Management Practice on WHMP lands. This is especially so when most surrounding private, state and industrial forest lands are managed for single species primarily consisting of Douglas-fir.

PacifiCorp and the USFWS consulted on forest management with respect to managing suitable spotted owl roosting and foraging habitat on WHMP lands. Suitable roosting and foraging

habitat was defined as mid-successional (forest stands characterized by average stand diameters 16 inches to 20 inches dbh with uniform structure) and upland mixed vegetation types. The development of small clearcuts in these forest types for other wildlife habitat purposes was recognized as adversely affecting the Northern spotted owl. However, the protection measures provided for old-growth, mature conifer and extensive buffers for streams and reservoirs that may eventually develop into suitable habitat allowed the USFWS to conclude in the biological opinion that implementation would not likely jeopardize the continued existence of the Northern spotted owl. For clearcuts to be conducted in dispersal habitat, at least 50 percent of the Utilities (PacifiCorp and Cowlitz PUD) owned lands would need to provide dispersal habitat at any point in time. The BPA proposal to develop a permanent corridor (regardless of location) through these lands will reduce the Utilities forest land management capabilities based on permanent loss of additional dispersal habitat, compounded with loss of suitable nesting habitat and will require USFWS consultation.

5. Invasive Plant Species Management

The WHMP goal is: ***Work to prevent the establishment and spread of noxious weeds currently listed by the Washington State Noxious Weed Control Board and Clark, Cowlitz, and Skamania County weed control boards, and other undesirable or invasive plants identified by the TCC.***

Transmission line ROW's are recognized as corridors for the establishment and spread of invasive plant species and requires regular maintenance and management to prevent establishment and spread to other areas. The linear nature of these areas promotes the rapid spread of wind borne seed and those carried in through the network of roads related to managing the transmission line. Because PacifiCorp has specific internal requirements regarding what herbicides may be used on its lands, these same restrictions would therefore be required for management under a BPA transmission line located on project lands.

6. Public Access Management

The WHMP goal is: ***Minimize disturbance to wildlife and protect their habitats while managing access for non-motorized recreation, which includes legal hunting and fishing, and activities associated with implementation of the WHMP.*** The specific objectives pertinent to the proposed BPA action are further identified as:

- Objective g: provide vegetated buffers along roads open to the public, where needed, to conceal big game and other wildlife using adjacent habitat.

The addition of roads and the associated transmission ROW's unintended for WHMP implementation requires additional access control, prevention of erosion, management of water control structures at road crossings, and managing vegetation buffers along roads to conceal big-game and other wildlife. Managing to prevent unauthorized motor vehicle access along roads

requires more than just gates and includes monitoring and enforcement of the company's policies to protect the WHMP mitigation lands from disturbance.

7. Transmission Line Rights-of-Way (ROW) Habitat Management

The WHMP goal is: *While allowing for the safe and reliable transmission of electricity, promote the establishment and maintenance of desirable vegetation on utility-owned lands in transmission line rights-of-way to provide habitat for wintering deer (*Odocoileus hemionus*) and elk (*Cervus elaphus*) and a diverse mix of shrub and other early-successional habitats.*

The specific objectives pertinent to the proposed BPA action are further identified as:

- Objective a: Manage and develop patches of desirable shrubs in the transmission rights-of-way and along edges to break up line-of-sight distances and provide screening/hiding cover for elk and multi-layered habitat structure for birds. Evaluate alternative techniques to provide security cover and reduce line-of-sight where needed.
- Objective b: Identify and manage suitable areas within transmission line rights-of-way to provide "enhanced forage" for elk and deer. Enhanced forage is defined as a mix of grasses and forbs that are considered forage species by elk and deer that may be mowed, fertilized, and/or seeded.
- Objective c: Identify and provide screening cover for deer and elk, where needed, along public roads that cross transmission rights-of-way.

Transmission line ROW's require significant man-power resources to conduct inspections, coordinate with vegetation control contractors and documenting that goals and objectives are being achieved. Like roads, managing to prevent unauthorized motor vehicle access along transmission ROW's requires more than just gates and includes monitoring and enforcement of the company's policies to protect the WHMP lands from disturbance.

Summary of Effects:

The TCC has reviewed the vegetation cover type and eagle survey reports prepared by Mason, Bruce & Girard (2011) for BPA and reviewed the WHMP requirements to determine the associated effects of one or more of the proposed BPA corridors. While certain aspects of the proposed transmission line can be mitigated, it is the opinion of the TCC that certain compliance obligations cannot be resolved without violating the Biological Opinion and the Merwin and Yale Project license article for Use and Occupancy. Specifically, the old-growth habitat loss and riparian habitat effects are potentially a significant impact to the overall WHMP.

Total acres of habitat impacts by corridor on WHMP lands are summarized in Table 4. The route that affects the greatest total acres of WHMP managed lands as well as having an unacceptable risk to bald eagles and their roost habitat is the K-W corridor through Canyon Creek and across the Lewis River. This route will cross the primary flight paths of bald eagles accessing foraging areas and/or winter roost habitat near Yale dam. This particular route would also affect habitat and management opportunities on almost 190 acres of WHMP lands. This option would also

eliminate almost 23 acres of existing old-growth habitat, and fragment the remaining portions such that the old-growth functions and usability for many old-growth reliant species may be lost. Old-growth coniferous forest as a resource on WHMP lands was intended to be preserved, maintained. Its expansion was to come in the maturing riparian and shoreline buffers that are also impacted by this route.

Maintaining snags is an important habitat component to enhance wildlife and habitat functions in all habitats and would be negatively impacted by the clearing of transmission line ROW's, access roads and adjacent habitat. Snags are specifically identified as management objectives in the WHMP objectives for old-growth habitat, riparian habitat, wetland habitat, shrublands and all managed forestland. All stream, shoreline and wetland buffers are also managed to provide snags and coarse woody debris as foraging, roosting, nesting and perching habitat for a variety of priority species (pileated woodpecker [*Dryocopus pileatus*], bald eagle, etc.). Snags provide critical habitat for both primary and secondary cavity nesters and loss of this habitat component would represent non-compliance with WHMP objectives. Potential loss of snags from any of the alternative corridors is best represented by looking at the total acres in the vegetation survey area shown in Table 4. While the number of snags cannot be determined from this table, at least 80% of the vegetation cover types would be expected to provide snags (excludes existing ROW's, developed and disturbed habitats etc.). The number of snags would be determined based on requirements described in the WHMP; 4 snags/acre greater than 20 inches in diameter in old-growth managed habitat and at least 8 trees/acre managed as snags or wildlife reserve trees in managed forest habitat.

Table 4. Summary of Cover Types Identified within the Project Survey Boundary

VEGETATION TYPE	CORRIDOR (acres)			
	L	M	K-W	L-N-W
DISTURBED / DEVELOPED	3.85	0.00	0.39	3.85
EXPOSED ROCK	0.00	0.00	0.73	0.00
MATURE CONIFER	1.60	0.00	0.56	2.13
MID-SUCCESSIONAL CONIFER	0.00	0.00	0.76	0.00
OLD GROWTH	4.98	10.45	22.24	25.25
PALUSTRINE EMERGENT WETLAND	0.00	0.00	0.39	0.00
POLE CONIFER	0.42	0.00	103.35	6.50
POLE CONIFER (THINNED)	12.99	0.00	4.86	12.99
SEEDLING / SAPLING	2.69	0.00	8.54	14.14
UPLAND DECIDUOUS	8.03	0.00	24.40	18.83
UPLAND MIXED	20.84	2.29	23.16	62.20
RIPARIAN DECIDUOUS	0.05	3.10	0.00	0.07
RIPARIAN MIXED	2.09	0.00	0.00	2.09
RIVERINE UNCONSOLIDATED BOTTOM	0.00	0.61	0.00	0.00

MEADOW	0.00	0.00	0.00	1.55
SHRUB	0.00	0.00	0.00	0.23
TOTAL	57.54	16.25	189.38	135.69

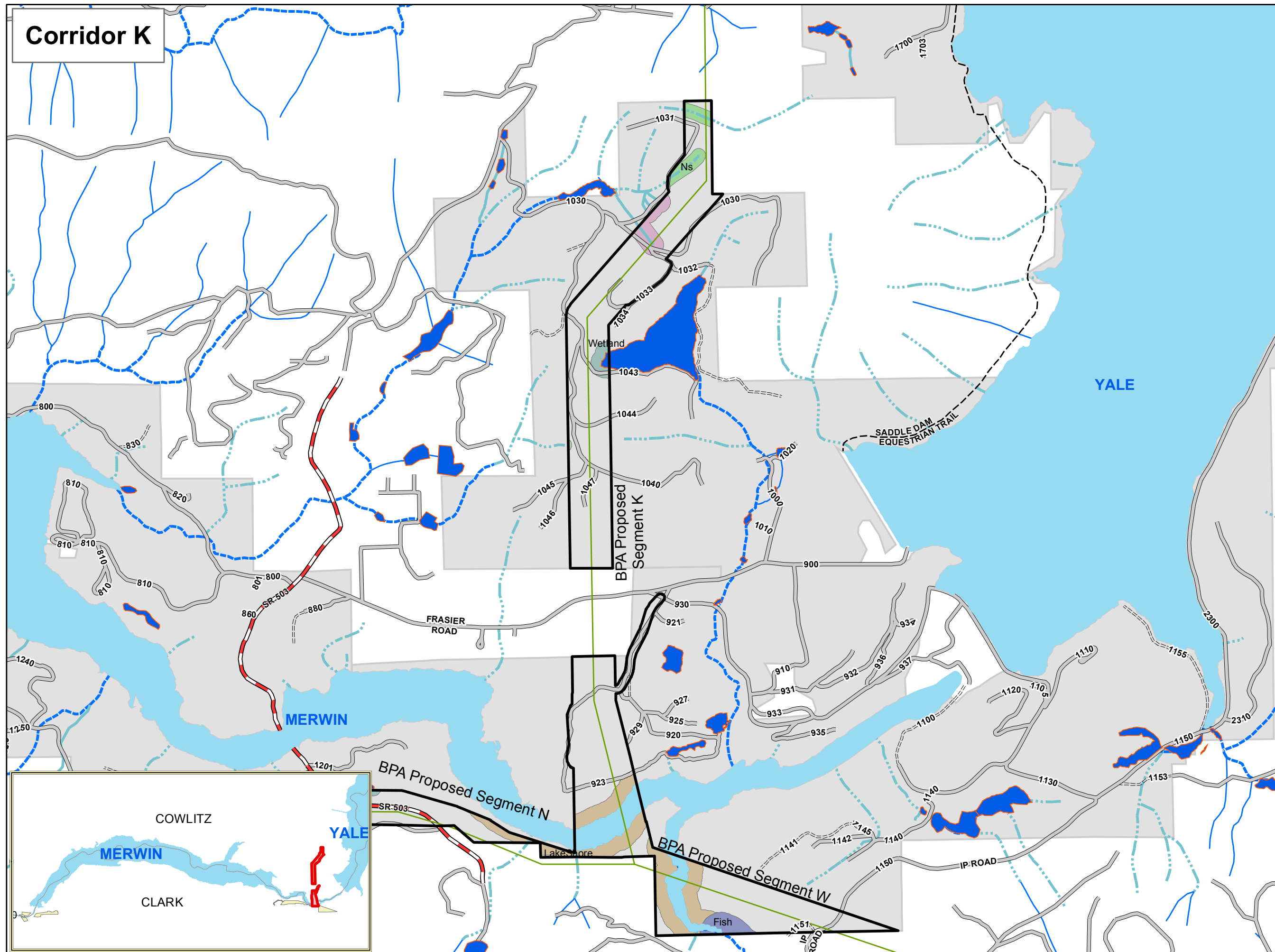
As previously stated, the BPA project will impact PacifiCorp's ability to meet a key habitat term and condition of the US Fish and Wildlife Service (USFWS) Biological Opinion (BiOp). The BiOp states: *For those lands managed under the WHMPs, no suitable spotted owl nesting habitat (Old-growth and mature stands) would be removed.* The BiOp is based on the settlement agreement conditions which directed the WHMP measures, and it concluded that PacifiCorp's management is not likely to jeopardize the continued existence of the spotted owl. They also concluded that the WHMP implementation would not likely jeopardize the continued existence of the bald eagle. The BiOp obviously did not anticipate the construction of the BPA transmission line across the primary flight corridors of bald eagles accessing roost and foraging areas along the river or the loss of suitable spotted owl nesting habitat.

REFERENCES

- Chen, J., J.F. Franklin, T.A. Spies. 1992. Vegetation responses to edge environments in old-growth Douglas-fir forests. Pages 387-396 *in* Ecological Applications, 2(4) by the Ecological Society of America.
- Federal Energy Regularly Commission. 2008a. PacifiCorp Merwin Hydroelectric License FERC Project No. P-935. June 26, 2008.
- Federal Energy Regularly Commission. 2008b. PacifiCorp Yale Hydroelectric License FERC Project No. P-2071. June 26, 2008.
- Federal Energy Regularly Commission. 2008c. PacifiCorp Swift No. 1 Hydroelectric License FERC Project No. P-2111. June 26, 2008.
- Mason, Bruce & Girard. 2011a. Phase I Technical Study Report, BPA Eagle Roost Monitoring on PacifiCorp Mitigation Land. Clark and Cowlitz Counties, Washington. Prepared for Bonneville Power Administration, Portland, Oregon. 20 pp.
- Mason, Bruce & Girard. 2011b. I-5 Corridor Reinforcement Project Vegetation Cover Type Mapping Survey Report. Clark and Cowlitz Counties, Washington. Prepared for Bonneville Power Administration, Portland, Oregon. 23 pp.
- PacifiCorp, Public Utility District No. 1 of Cowlitz County, National Marine Fisheries Service, National Park Service, Bureau of Land Management, U.S. Fish and Wildlife Service, USDA Forest Service, Confederated Tribes and Bands of the Yakama Nation, Washington Department of Fish and Wildlife, Washington Interagency Committee for Outdoor Recreation, Cowlitz County, Cowlitz-Skamania Fire District No. 7, North Country Emergency Medical Service, City of Woodland, Woodland Chamber of Commerce, Lewis River Community Council, Lewis River Citizens At-Large, American Rivers, Fish First, Rocky Mountain Elk Foundation, Trout Unlimited, Native Fish Society and Cowlitz Indian Tribe. 2004. Settlement Agreement Concerning the Relicensing of the Lewis River Hydroelectric Projects, FERC Project Nos. 935, 2071, 2111, and 2213, Cowlitz, Clark, and Skamania Counties, Washington. November 30,
- PacifiCorp. 2008. Lewis River Wildlife Habitat Management Plan Volume I through IV. Portland, Oregon. December 2008.

Corridor K

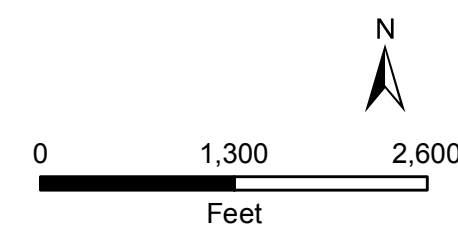
Lewis River Buffer by corridor



Legend

Buffer Type	
	Np
	Ns
	Wetland
	LakeShore
	Fish
	BPA Proposed Lines
	Survey Boundaries
	Management Unit

Water Features	
	Wetlands
	Water Body
	Fish Stream
	Non-fish Perennial
	Non-fish Seasonal
	Other



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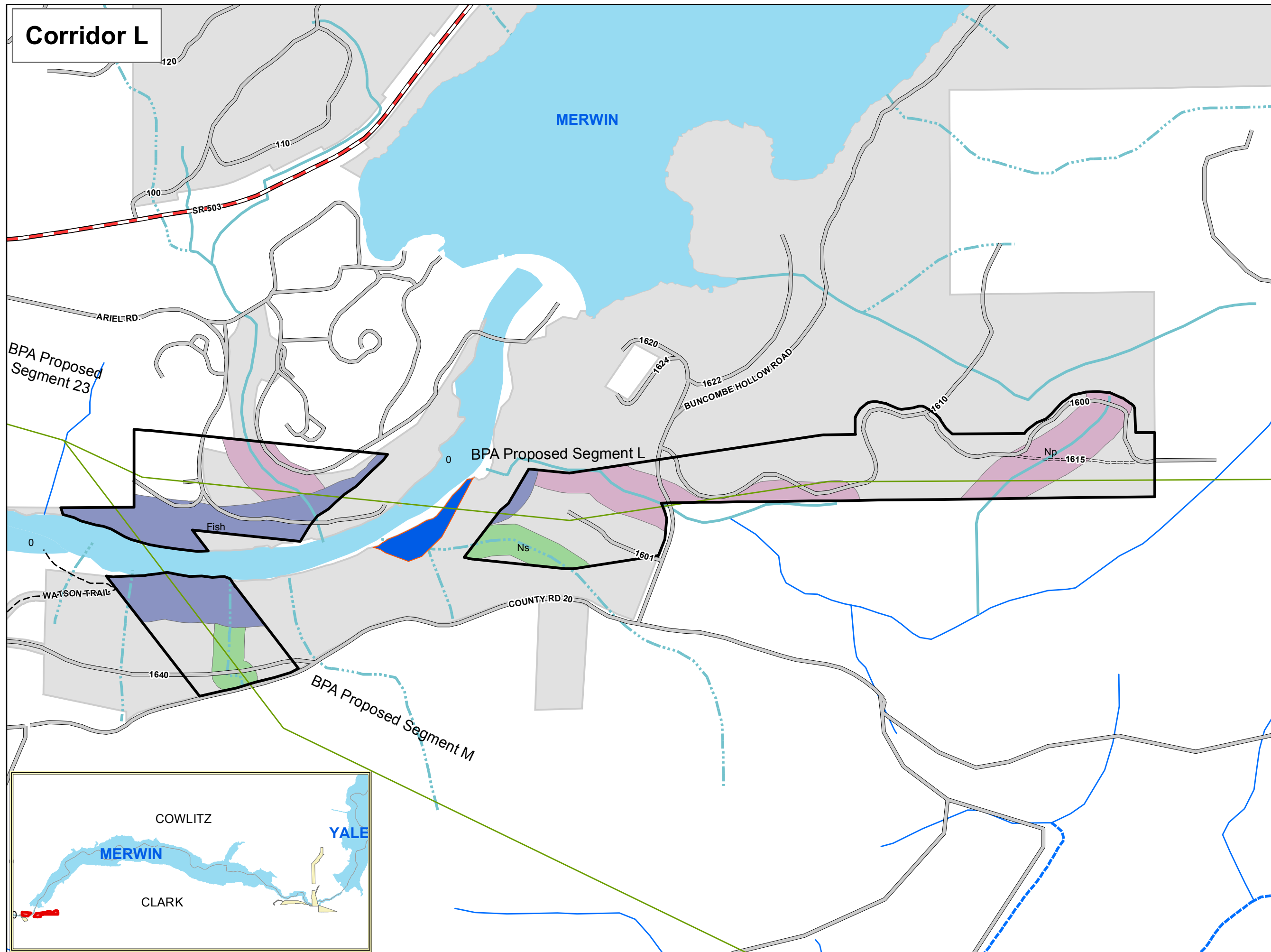
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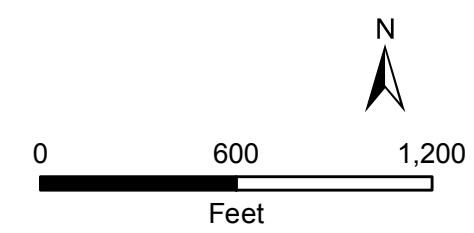
Corridor L

Lewis River Buffer by corridor



Legend

- Buffer**
- Type**
- Np
- Ns
- Wetland
- LakeShore
- Fish
- BPA Proposed Lines
- Survey Boundaries
- Management Unit
- Water Features**
- Wetlands
- Water Body
- Fish Stream
- Non-fish Perennial
- Non-fish Seasonal
- Other



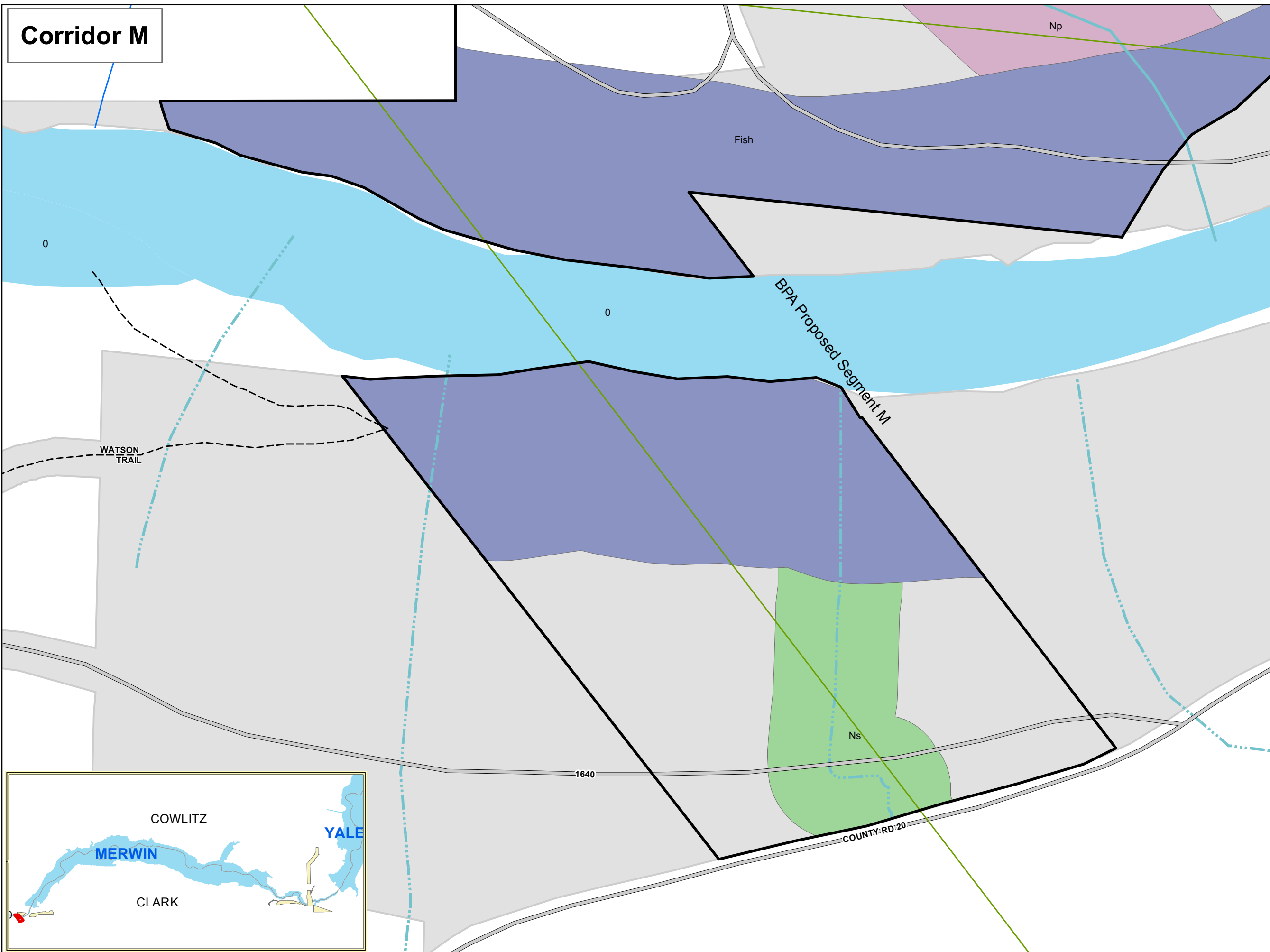
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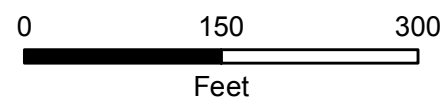
Corridor M

Lewis River Buffer by corridor



Legend

- | Buffer Type | |
|--|--------------------|
| | Np |
| | Ns |
| | Wetland |
| | LakeShore |
| | Fish |
| | BPA Proposed Lines |
| | Survey Boundaries |
| | Management Unit |
| Water Features | |
| | Wetlands |
| | Water Body |
| | Fish Stream |
| | Non-fish Perennial |
| | Non-fish Seasonal |
| | Other |



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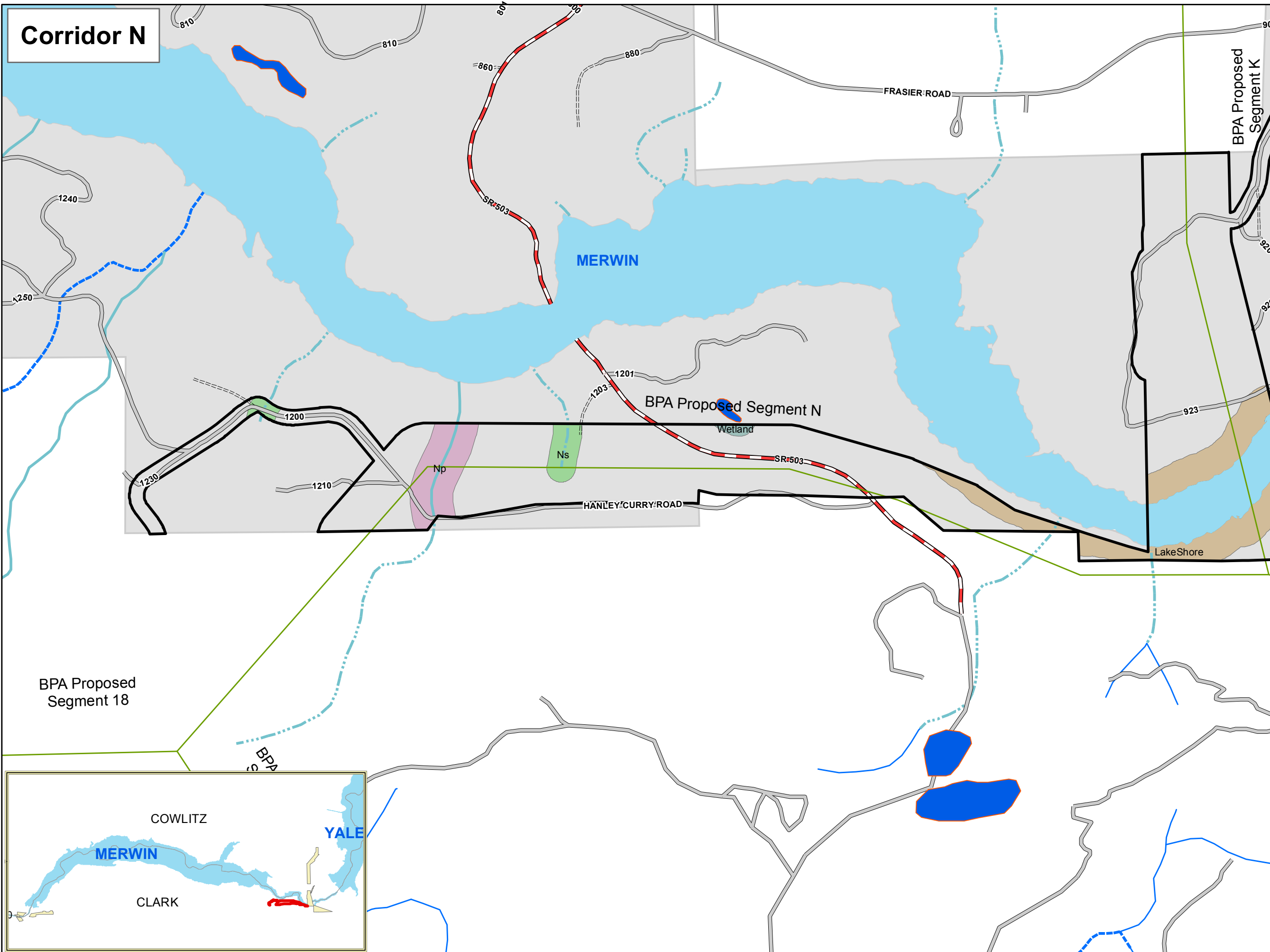
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Corridor N

Lewis River Buffer by corridor



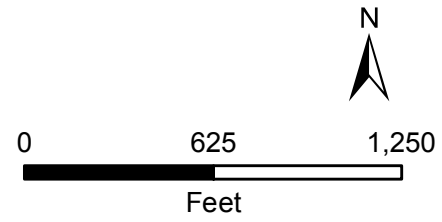
Legend

Buffer Type

- Np
- Ns
- Wetland
- LakeShore
- Fish
- BPA Proposed Lines
- Survey Boundaries
- Management Unit

Water Features

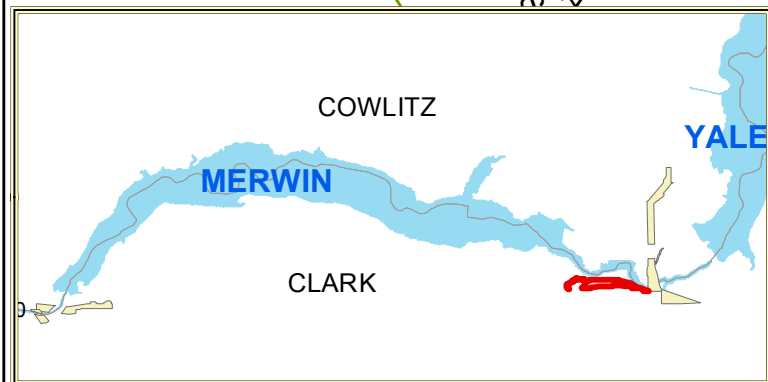
- Wetlands
- Water Body
- Fish Stream
- Non-fish Perennial
- Non-fish Seasonal
- Other



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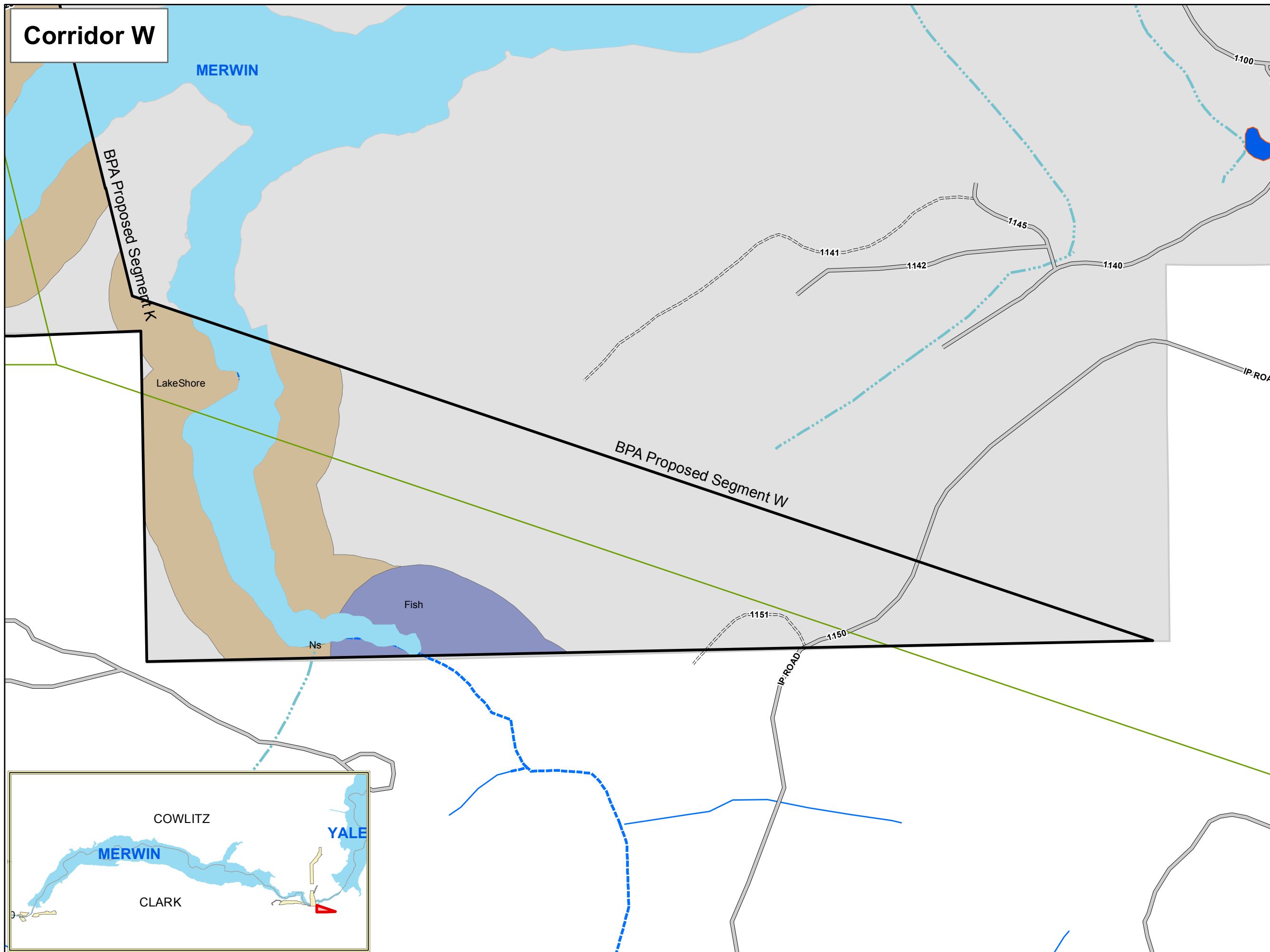
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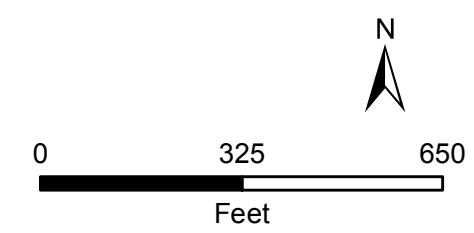
Corridor W

Lewis River Buffer by corridor



Legend

- | Buffer Type | |
|----------------|--------------------|
| | Np |
| | Ns |
| | Wetland |
| | LakeShore |
| | Fish |
| | BPA Proposed Lines |
| | Survey Boundaries |
| | Management Unit |
| Water Features | |
| | Wetlands |
| | Water Body |
| | Fish Stream |
| | Non-fish Perennial |
| | Non-fish Seasonal |
| | Other |



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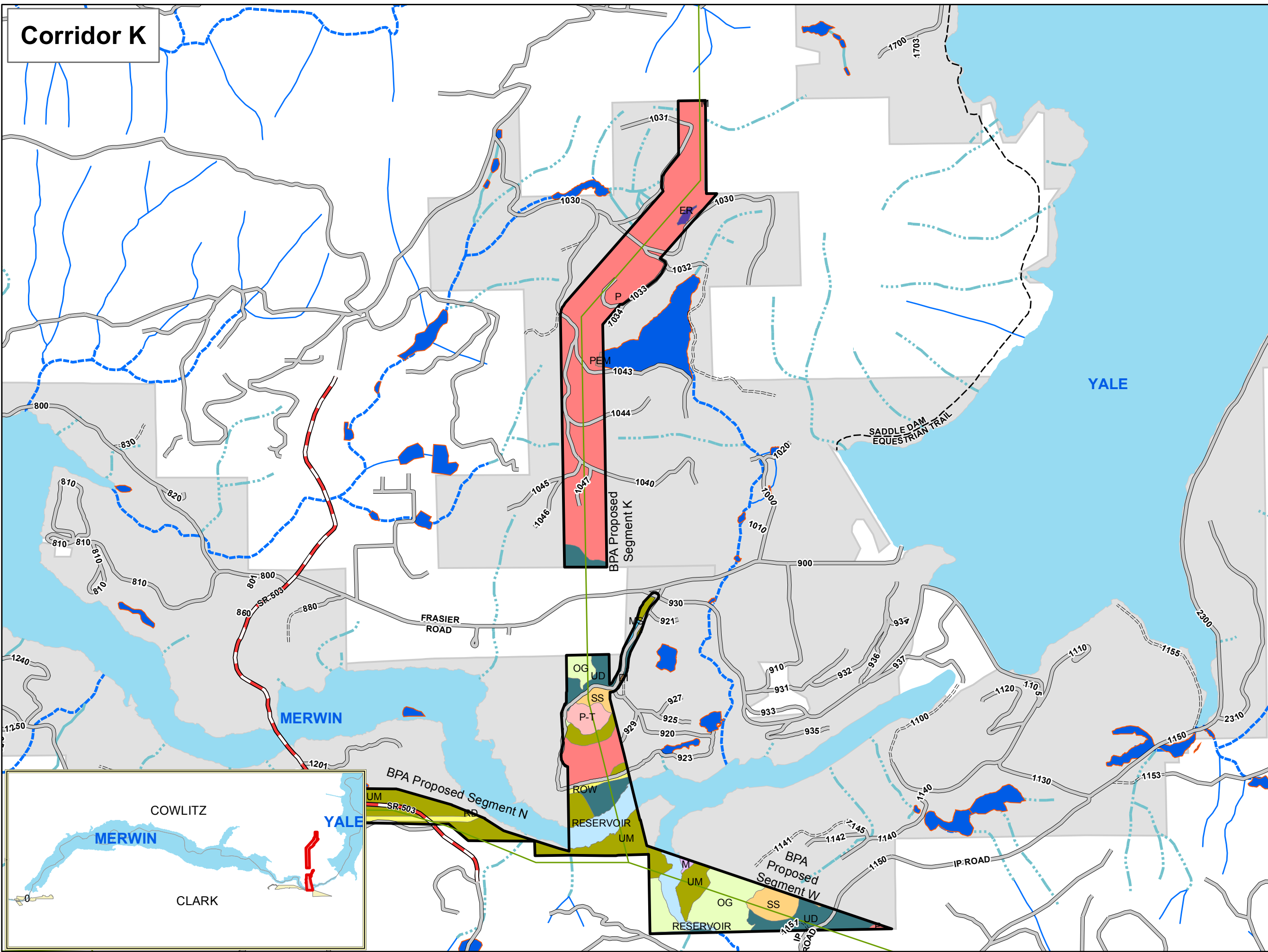
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Corridor K

Lewis River Vegetation by corridor



Legend

BPA proposed Lines

- BPA proposed Lines

Vegetation Type

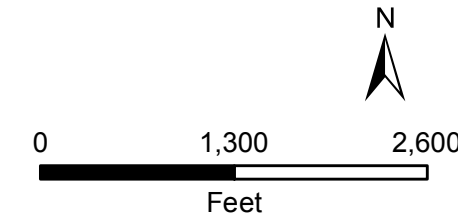
- DEVELOPED
- DISTURBED
- EXPOSED ROCK
- MATURE CONIFER
- MEADOW
- MID-SUCCESSIONAL CONIFER
- OLD GROWTH
- PALUSTRINE EMERGENT WETLAND
- POLE CONIFER
- POLE CONIFER (THINNED)
- RESERVOIR
- RESIDENTIAL
- RIGHT-OF-WAY
- RIPARIAN DECIDUOUS
- RIPARIAN MIXED
- RIVERINE UNCONSOLIDATED BOTTOM
- SEEDLING / SAPLING
- SHRUB
- UPLAND DECIDUOUS
- UPLAND MIXED

Water Features

- Wetlands
- Water Body
- Fish Stream
- Non-fish Perennial
- Non-fish Seasonal
- Other

Other Symbols

- Survey Boundaries
- Management Unit



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A DIVISION OF PACIFICORP

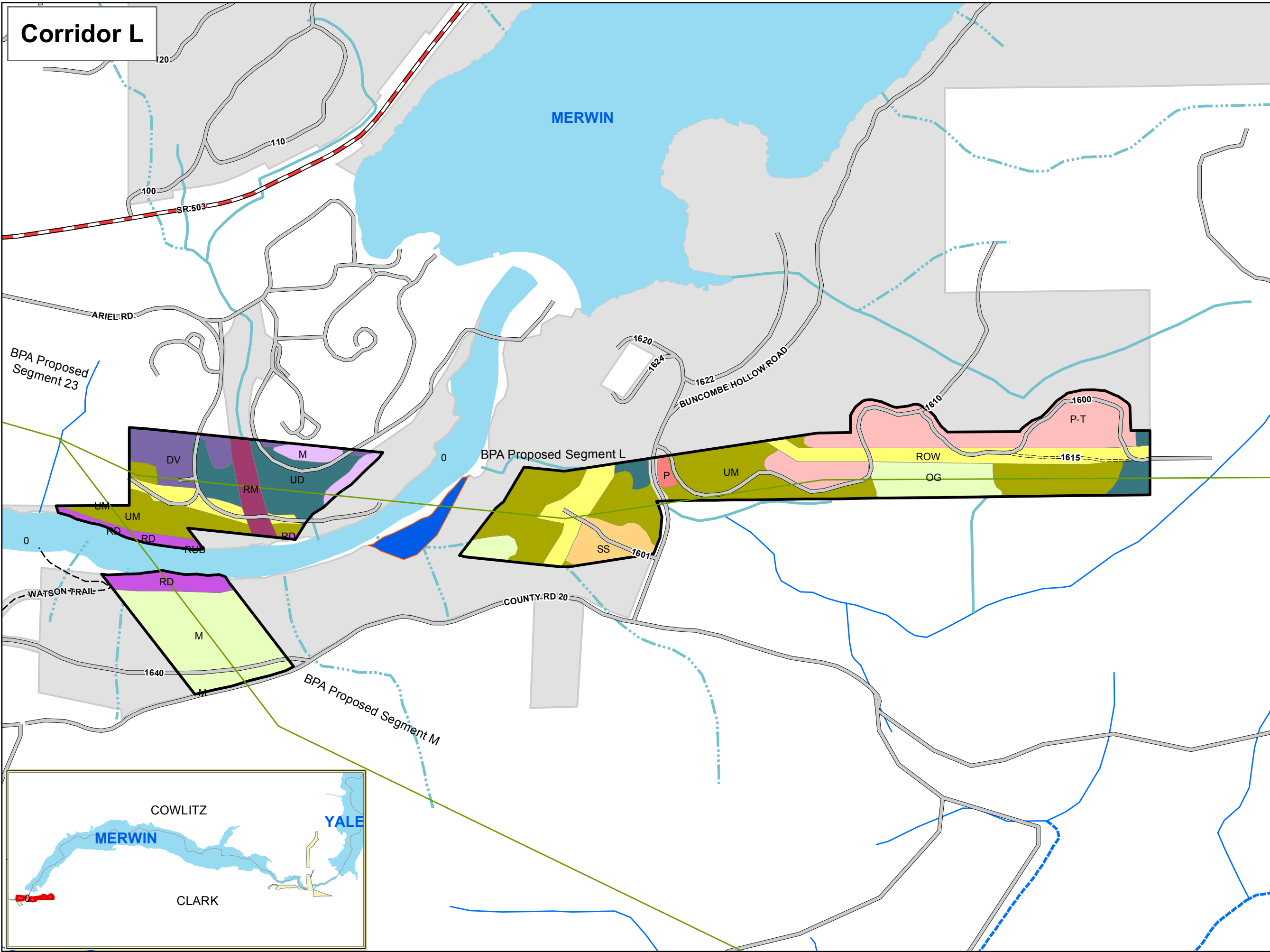
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Solutions Group
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Data are projected in NAD 1983 UTM Zone 10N, meters.

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Corridor L

Lewis River Vegetation by corridor



Legend

BPA proposed Lines

- BPA proposed Lines

Vegetation Type

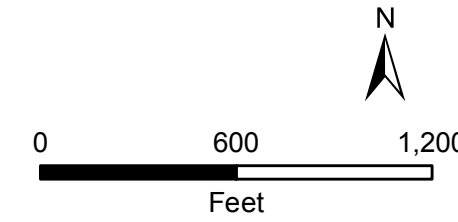
- DEVELOPED
- DISTURBED
- EXPOSED ROCK
- MATURE CONIFER
- MEADOW
- MID-SUCCESSIONAL CONIFER
- OLD GROWTH
- PALUSTRINE EMERGENT WETLAND
- POLE CONIFER
- POLE CONIFER (THINNED)
- RESERVOIR
- RESIDENTIAL
- RIGHT-OF-WAY
- RIPARIAN DECIDUOUS
- RIPARIAN MIXED
- RIVERINE UNCONSOLIDATED BOTTOM
- SEEDLING / SAPLING
- SHRUB
- UPLAND DECIDUOUS
- UPLAND MIXED

Survey Boundaries

- Survey Boundaries
- Management Unit

Water Features

- Wetlands
- Water Body
- Fish Stream
- Non-fish Perennial
- Non-fish Seasonal
- Other



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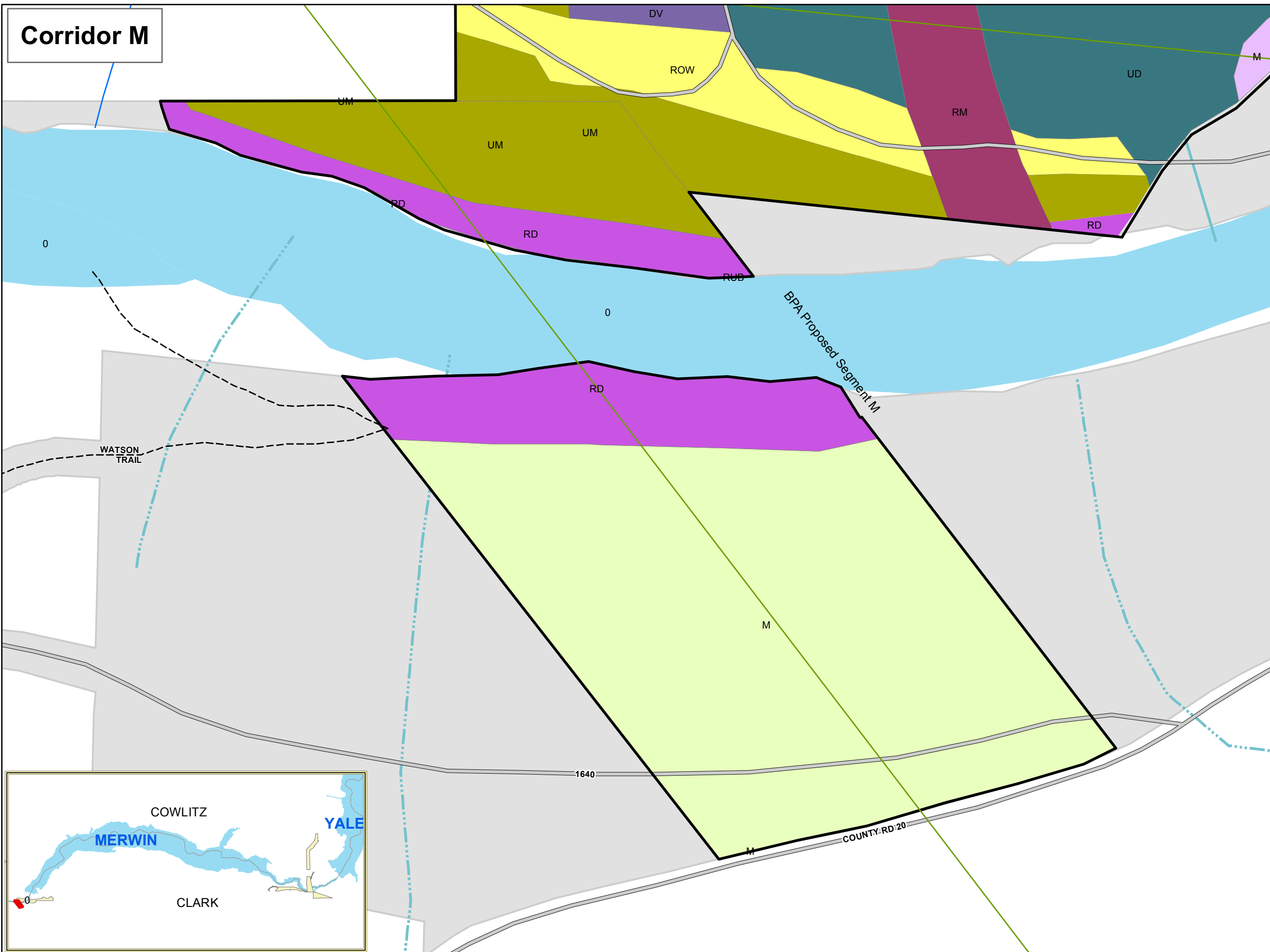
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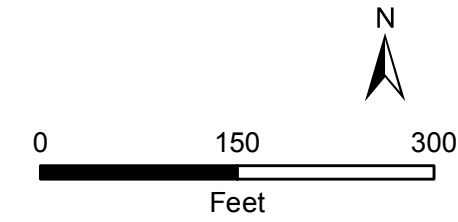


Corridor M

Lewis River Vegetation by corridor



- Legend**
- BPA proposed Lines
 - Vegetation Type**
 - DEVELOPED
 - DISTURBED
 - EXPOSED ROCK
 - MATURE CONIFER
 - MEADOW
 - MID-SUCCESSIONAL CONIFER
 - OLD GROWTH
 - PALUSTRINE EMERGENT WETLAND
 - POLE CONIFER
 - POLE CONIFER (THINNED)
 - RESERVOIR
 - RESIDENTIAL
 - RIGHT-OF-WAY
 - RIPARIAN DECIDUOUS
 - RIPARIAN MIXED
 - RIVERINE UNCONSOLIDATED BOTTOM
 - SEEDLING / SAPLING
 - SHRUB
 - UPLAND DECIDUOUS
 - UPLAND MIXED
 - Survey Boundaries
 - Management Unit
 - Water Features**
 - Wetlands
 - Water Body
 - Fish Stream
 - Non-fish Perennial
 - Non-fish Seasonal
 - Other



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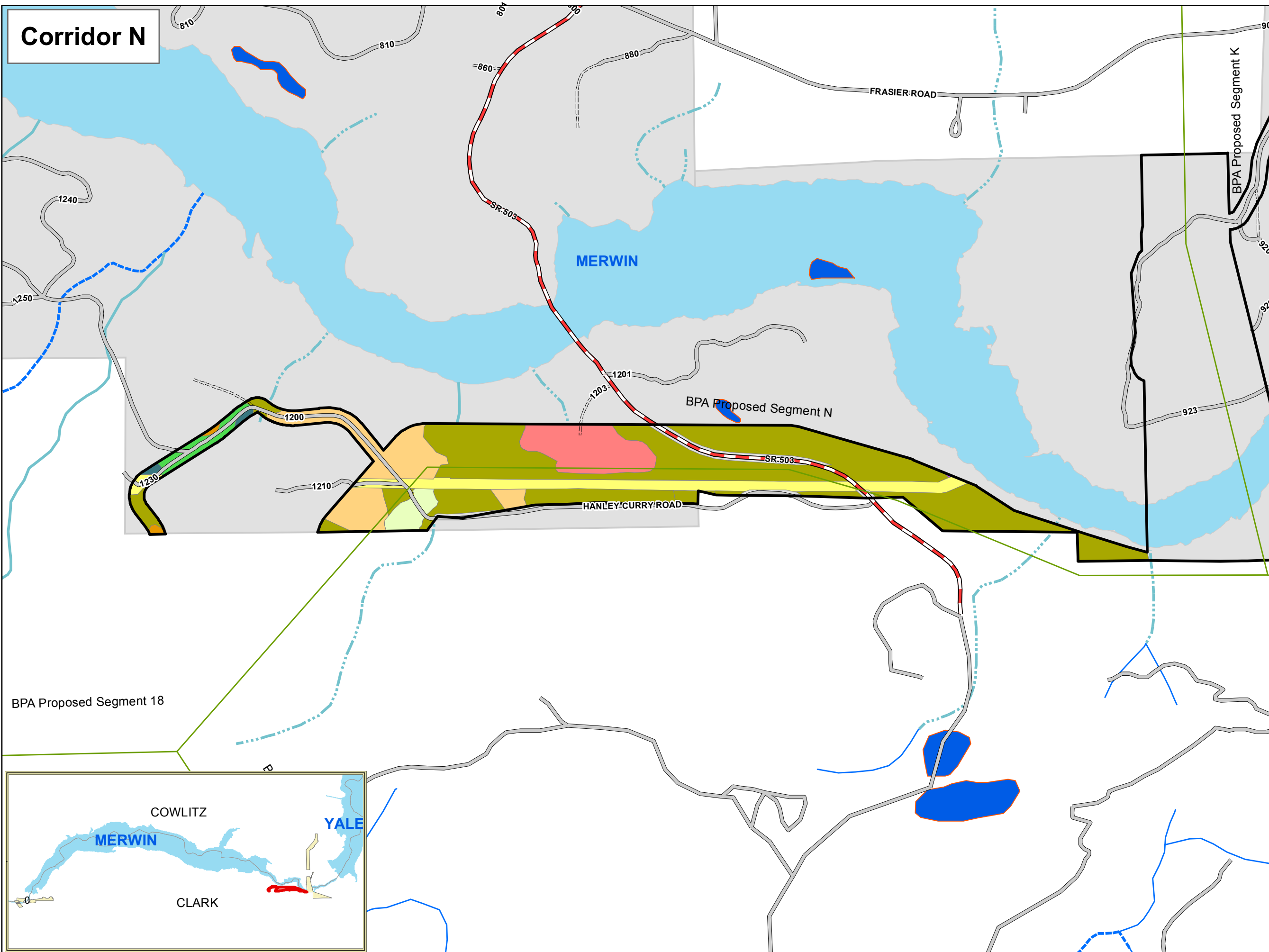
Data are projected in NAD 1983 UTM Zone 10N, meters.

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Corridor N

Lewis River Vegetation by corridor



Legend

BPA proposed Lines

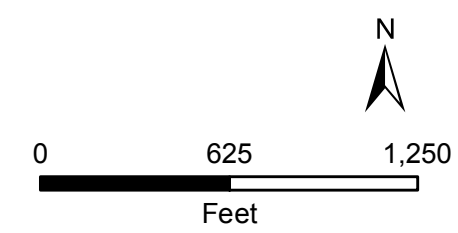
- BPA proposed Lines

Vegetation Type

- DEVELOPED
- DISTURBED
- EXPOSED ROCK
- MATURE CONIFER
- MEADOW
- MID-SUCCESSIONAL CONIFER
- OLD GROWTH
- PALUSTRINE EMERGENT WETLAND
- POLE CONIFER
- POLE CONIFER (THINNED)
- RESERVOIR
- RESIDENTIAL
- RIGHT-OF-WAY
- RIPARIAN DECIDUOUS
- RIPARIAN MIXED
- RIVERINE UNCONSOLIDATED BOTTOM
- SEEDLING / SAPLING
- SHRUB
- UPLAND DECIDUOUS
- UPLAND MIXED
- Survey Boundaries
- Management Unit

Water Features

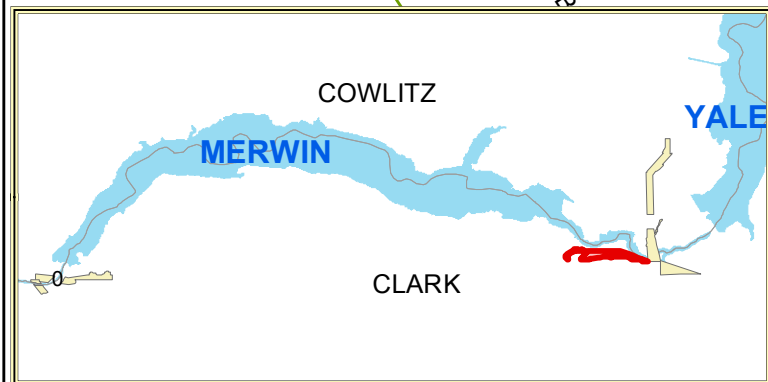
- Wetlands
- Water Body
- Fish Stream
- Non-fish Perennial
- Non-fish Seasonal
- Other



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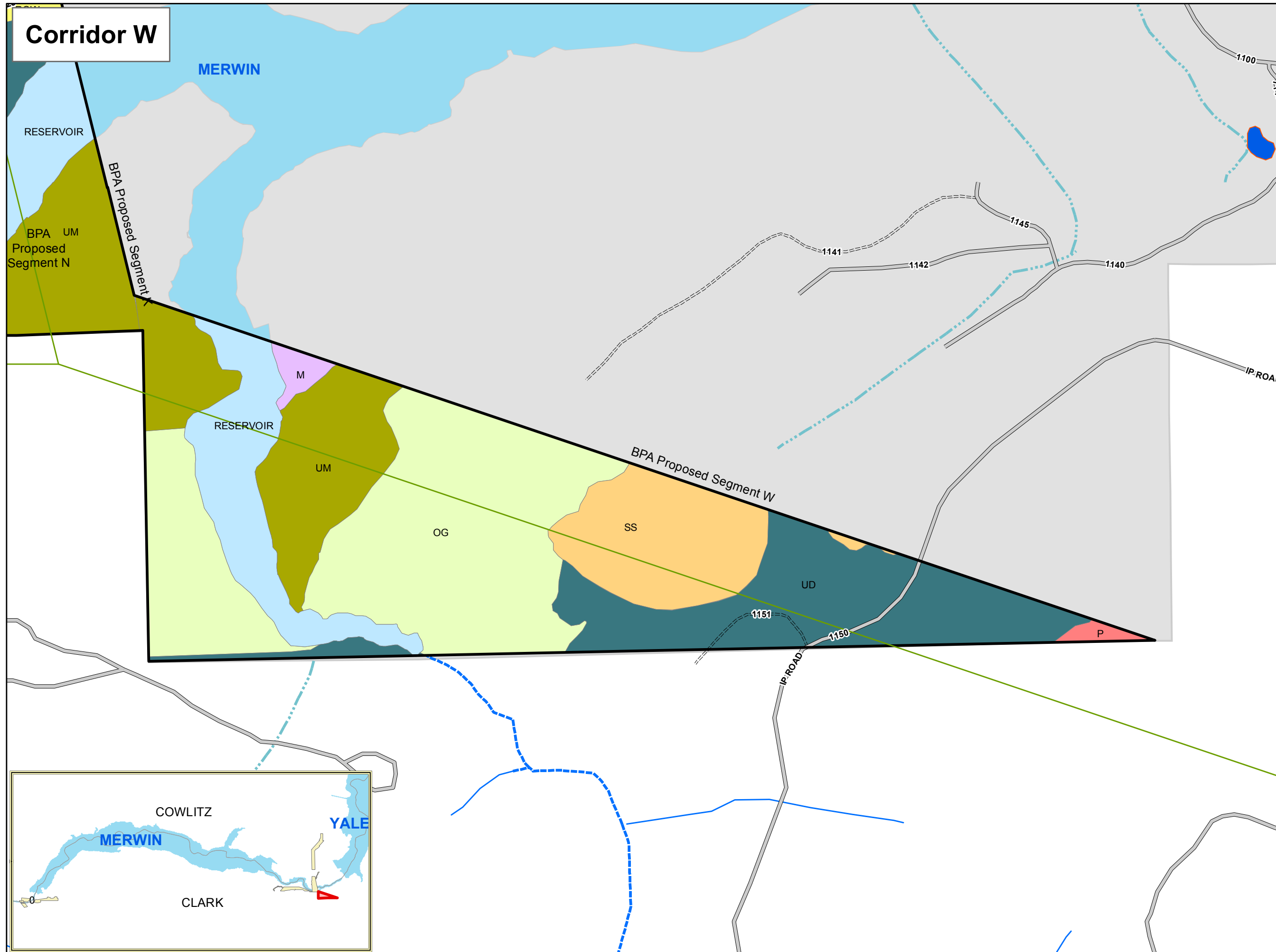
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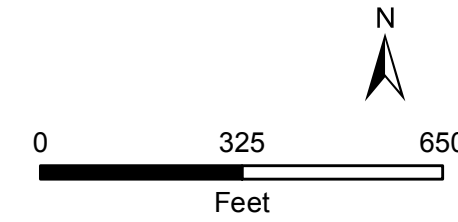


Corridor W

Lewis River Vegetation by corridor



- Legend**
- BPA proposed Lines**
- BPA UM Proposed Segment N
 - BPA Proposed Segment W
- Vegetation Type**
- DEVELOPED
 - DISTURBED
 - EXPOSED ROCK
 - MATURE CONIFER
 - MEADOW
 - MID-SUCCESSIONAL CONIFER
 - OLD GROWTH
 - PALUSTRINE EMERGENT WETLAND
 - POLE CONIFER
 - POLE CONIFER (THINNED)
 - RESERVOIR
 - RESIDENTIAL
 - RIGHT-OF-WAY
 - RIPARIAN DECIDUOUS
 - RIPARIAN MIXED
 - RIVERINE UNCONSOLIDATED BOTTOM
 - SEEDLING / SAPLING
 - SHRUB
 - UPLAND DECIDUOUS
 - UPLAND MIXED
 - Survey Boundaries
 - Management Unit
- Water Features**
- Wetlands
 - Water Body
 - Fish Stream
 - Non-fish Perennial
 - Non-fish Seasonal
 - Other



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